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PATENT

Attorney Reference Number 6541-60555-01
Application Number 09/745,268

Amendments to the Claims

1. (Currently Amended) A method of monitoring performance of a wireless system, comprising:
 - (a) transmitting a call comprising a communication signal from a mobile wireless device to a radio base station, the communication signal comprising call data;
 - (b) using a first receiver associated with the radio base station, receiving the communication signal and delivering the communication signal to a switch that forwards the call;
 - ~~(b)~~(c) using a second receiver associated with the radio base station, receiving the communication signal and obtaining uplink performance parameters associated with the communication signal;
 - ~~(e)~~(d) obtaining location information of the mobile wireless device by analyzing the communication signal received by the second receiver; and
 - ~~(d)~~(e) evaluating the performance of the wireless system using the uplink performance parameters associated with the communication signal received by the second receiver from the mobile wireless device and the location information of the mobile wireless device.
2. (Original) The method of claim 1, wherein the step of evaluating the performance of the wireless system is performed in real-time.
3. (Previously Presented) The method of claim 1, wherein the location information of the mobile wireless device is collected from a plurality of radio base stations.
4. (Original) The method of claim 1, wherein the step of obtaining the location information involves analyzing timestamp data.
5. (Original) The method of claim 1, wherein the step of obtaining the location information involves using a time difference of arrival location processor.

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6. (Previously Presented) The method of claim 5, wherein the time difference of arrival location processor is in the mobile wireless device.

7. (Original) The method of claim 5, wherein the time difference of arrival location processor is in the wireless system.

8. (Canceled)

9. (Previously Presented) The method of monitoring performance of a wireless system according to claim 1, wherein obtaining location information of the mobile wireless device is accomplished using a global positioning system unit in the mobile wireless device.

10. (Previously Presented) The method of monitoring performance of a wireless system according to claim 1, wherein obtaining location information of the mobile wireless device is accomplished using RF finger printing using dispersion characteristics of the communication signal.

11. (Currently Amended) A method of monitoring performance of a wireless system, comprising:

(a) transmitting respective calls comprising respective communication signals from a plurality of mobile wireless devices to a radio base station, the communication signals comprising respective call data;

(b) using a first receiver associated with the radio base station, receiving the communication signals and delivering the communication signals to a switch that forwards the respective calls;

~~(b)~~(c) using a second receiver associated with the radio base station, receiving the communication signals and obtaining uplink performance parameters associated with the communication signals;

~~(e)~~(d) obtaining location information of the plurality of mobile wireless devices by analyzing the communication signals; and

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(d)(e) evaluating the performance of the wireless system using the uplink performance parameters and the location information of each of the plurality of mobile wireless devices.

12. (Original) The method of claim 11, wherein the step of evaluating the performance of the wireless system is performed in real-time.

13. (Previously Presented) The method of claim 11, wherein the location information of the plurality of mobile wireless devices is collected from a plurality of radio base stations.

14. (Original) The method of claim 11, wherein the step of obtaining the location information involves analyzing timestamp data.

15. (Original) The method of claim 11, wherein the step of obtaining the location information involves using a time difference of arrival location processor.

16. (Previously Presented) The method of claim 15, wherein a time difference of arrival location processor is in each of the plurality of mobile wireless devices.

17. (Original) The method of claim 15, wherein the time difference of arrival location processor is in the wireless system.

18.-20. (Canceled)

21. (Previously Presented) A system for monitoring performance of a wireless system, said system comprising:

a plurality of wireless devices which transmit communication signals to a radio base station, the communication signals comprising respective call data and at least one uplink performance parameter;

a first receiver located at the radio base station which receives the communication signals and transmits the communication signals to a switch;

a second receiver located at the radio base station which monitors the communication signals

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and transmits timestamp data associated with the communication signals to the switch, the timestamp data being associated with respective locations of the wireless devices; and

a system analyzer coupled to the switch which evaluates the performance of the wireless system based on the respective uplink performance parameters and the respective locations of the wireless devices.

22. (Original) The system of claim 21, wherein a time difference of arrival location processor is coupled to the switch and to the system analyzer.

23. (Currently Amended) A system for monitoring performance of a wireless system, said system comprising:

a plurality of wireless devices which transmit respective calls comprising respective communications signals to a radio base station, the communication signals comprising respective call data and at least one respective uplink performance parameter;

a first receiving means associated with the radio base station for receiving the communication signals and transmitting the communication signals to a switch means for forwarding the calls;

a second receiving means associated with the radio base station for receiving the communication signals for determining respective locations of the wireless devices;

a monitoring means for monitoring the communication signals received by the second receiving means and for transmitting timestamp data associated with the communication signals to the switch means, the timestamp data being associated with respective locations of the wireless devices; and

a system analyzer means, coupled to the switch means, for evaluating the performance of the wireless system based on the respective uplink performance parameters and the respective locations of the wireless devices.

24. (Previously Presented) A system for monitoring performance of a wireless system, the wireless system including a plurality of wireless devices transmitting communication signals to a radio base station, the communication signals comprising respective call data and at least one uplink performance parameter, said system comprising:

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a first receiver located at the radio base station that receives the communication signals and transmits the communication signals to a switch;

a second receiver located at the radio base station which receives respective location information associated with each of the plurality of wireless devices, the location information being associated with the respective communication signals; and

a system analyzer coupled to the switch which evaluates the performance of the wireless system based on the at least one uplink performance parameter and the respective locations of the wireless devices.

25. (Original) The system of claim 24, wherein the second receiver receives location information using RF finger printing data associated with distortion characteristics of the communication signals.

26. (Original) The system of claim 24, wherein the second receiver receives location information from global position system units in each of the plurality of wireless devices.

27. (Currently Amended) A system for monitoring performance of a wireless system, the wireless system including a wireless device transmitting ~~a communication signal~~signals to a radio base station, the communication ~~signal~~signals comprising call data produced by the wireless device and including at least one uplink performance parameter, said system comprising:

a first receiver located at the radio base station that receives the communication signals and transmits the communication signals to a switch that forwards a call associated with the communication signals;

a location measurement unit in the wireless device that determines the location of the wireless device and includes corresponding location data in the communication signals;

a second receiver located at the radio base station that receives the at least one uplink performance parameter and the location data in the communication signals; and

a system analyzer, coupled to the switch, which evaluates the performance of the wireless system based on the received at least one uplink performance parameter and the location of the wireless device.

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28. (Original) The system of claim 27, wherein the location information measurement unit is associated with a time difference of arrival technique.

29. (Canceled)

30. (Previously Presented) The method of claim 1, further comprising locating a geographical area associated with faulty coverage based on the performance evaluation.

31. (Previously Presented) The method of claim 1, wherein the evaluation is based on mobile-assisted handoff information.

32. (Previously Presented) The method of claim 1, further comprising generating an information report concerning signal coverage of a geographical area based on the performance evaluation.

33. (Previously Presented) The method of claim 1, further comprising adjusting the radio base station based on the performance evaluation.

34. (Previously Presented) The system for monitoring performance of a wireless system of claim 21, wherein the system analyzer is configured to indicate a geographical location associated with faulty coverage based on the performance evaluation.

35. (Currently Amended) A method of assessing wireless system performance, comprising:
using a first receiver, collecting downlink call data associated with a call to a mobile wireless device, the downlink call data being collected in real time;
using a second receiver, collecting uplink call data associated with the call to the mobile wireless device, the uplink call data also being collected in real time;
obtaining location information associated with the mobile wireless device; and

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based on the downlink call data, the uplink call data, and the location information, evaluating system performance.

36. (Previously Presented) The method of claim 35, further comprising removing transient effects from the system performance evaluation based on the uplink call data and the location information.